

REMARKS/ARGUMENTS

Within the final Office Action mailed July 6, 2005, claims 1-10 and 23-29 are rejected under 35 U.S.C. § 103(a). By way of the above amendments, claim 26 has been amended and claims 30-32 have been added. Claims 11-22 were previously withdrawn. Accordingly, claims 1-10 and 23-32 are pending.

Correction of typographical errors

As originally filed, claims 4 and 7 each ended with a period. Within the *Response to Office Mailed on January 5, 2005*, claims 4 and 7 were inadvertently shown to end with commas, but because the claims had not been amended their status was shown as “original,” that is, unchanged. In the listing of claims above, the typographical errors have been corrected so that each of the claims 4 and 7 ends with a period, as originally filed. The status of these claims are still shown as “original” to indicate that they have never been amended in this case.

The present invention

The present invention is directed to routing data over networks by selecting routes containing Service Provider Access Links (SPALs). The routes pass from an originating node to a destination corresponding to a prefix. Performance scores are determined for each route. When a performance score for the new SPAL is superior to the performance for the current SPAL, the new SPAL is selected for routing data to the destination.

By determining a current SPAL, embodiments of the present invention are able to determine when a new SPAL is selected by comparing its performance score to that of the current SPAL. (*See, e.g.*, Specification at page 27, lines 4-8) Advantageously, the present invention is thus able to minimize the flap rate when determining whether to select a new SPAL. (*See, e.g.*, page 29, lines 7-25). In other words, slight and constant changes in performance scores do not necessarily result in constant switching (flapping) between SPALs, which can adversely affect network traffic.

In accordance with other embodiments, a penalty factor can be applied to the performance score to a particular SPAL. This can be used to control costs or to accomplish other policy objectives. *Id.*, page 12, line 22, to page 13, line 1.

Rejections under 35 U.S.C. § 103(a)

Within the final Office Action, claims 1, 2, 9, 23, 27, and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,563,875 to Hefel et al. in view of U.S. Patent No. 6,633,640 to Cohen et al. The Applicants respectfully traverse these rejections.

Hefel

Hefel is directed to a packet communications network that includes a route testing system. (Hefel, Abstract) The system calculates transit times to resources in a network. The system is used to “identify specific points of congestion along the connection, to analyze the overall performance of the network, . . . and to determine if a particular node or link has failed completely.” (Hefel, col. 8, lines 19-24) Hefel does not disclose configuring a router to select a path along the network.

Indeed, Hefel discloses a High Performance Routing (HPR) system, which embeds in data packets a routing information vector that identifies, in order, each router the data packet visits. (Col. 4, lines 31-36). Hefel thus configures data packets, not routers.

Hefel also does not disclose determining a current Service Provider Access Link (SPAL). Within the final Office Action, it is stated that Hefel discloses this step at column 1, lines 49-58. This is not true. Here, Hefel states that prior art discloses a Systems Network Architecture (SNA) comprising nodes. Each node in a data path stores a database that contains current information about the state of all of resources of the network. This information is used to determine optimal routes, which are saved and used to control the actual routing of data packets. The prior art thus discloses storing network resources, not a current SPAL.

Cohen

Cohen is directed to distributing calls across distributed call center sites, each with human agents for responding to the calls. (Cohen, Abstract) Cohen discloses keeping statistics on the average speed of answer (ASA) for each site. The ASA is used to determine to which site a call should be routed, where it is handled by the agents, so that the ASA is made uniform across the sites. Thus, customers who call in to the system all experience approximately the same wait. To this end, the system in Cohen includes a central load balancing application (30, Figure 1) that accesses performance data about call responses to determine to which customer agent to route a call. The central load application then notifies a network provider, which routes the call. (Col. 3, line 65, to col. 4, line 8) Whereas the present invention optimizes the transfer of data to a

specific destination, Cohen *changes* the destination to which calls are routed. Unlike embodiments of the present invention, Cohen does not disclose configuring a router in any way, much less to select an access link. Furthermore, Cohen does not disclose detecting a current SPAL as recited in claim 1 of the present invention.

Claims 1, 2, 9, and 23, 27-31

Claim 1 is directed to a method of routing a data flow traversing one or more routers in an internetwork. The one or more routers are coupled to a plurality of service provider access links. The method comprises determining a prefix for the data flow and calculating a plurality of performance scores for the plurality of service provider access links. Each of the plurality of performance scores indicates a performance of a route from a router of the one or more routers to the prefix via a distinct service provider access link from the plurality of service provider access links. The method further comprises detecting a current service provider access link for the prefix. The current service provider access link corresponds to a current route to the prefix specified by a routing protocol. The current service provider access link has a performance score from the plurality of service provider access links. The method further comprises selecting a new service provider access link from the plurality of service provider access links for routing the data flow to the prefix. The new server provider access link has a performance score from the plurality of performance scores superior to the performance score for the current service provider access link.

Claim 1 is allowable over Hefel, Cohen, and their combination. Within the final Office Action, it is stated that Hefel does not disclose, among other things, “calculating a plurality of performance scores . . . each indicating performance of a route from a router.” It is stated, however, that Cohen teaches this element. But Cohen does not teach determining a performance score for a route to a prefix, as recited in claim 1. Cohen teaches taking measurements for answering calls, not for a call reaching a node. The measurements in Cohen are directed to a call being answered and thus depend on the time for the call to reach an agent and (generally a greater portion of the wait) also for an agent to complete a previous call. Indeed, in the system in Cohen, a call can reach an agent quickly but not be answered quickly. In sum, Cohen does not measure performance of routing (e.g., time to reach a node) but of call processing.

Claim 1 is allowable over Hefel and Cohen for another reason: Neither Cohen nor Hefel discloses detecting a current SPAL for a prefix for a data flow, as recited in claim 1.

Because neither Cohen, nor Hefel, nor their combination teaches each element of claim 1,

claim 1 is allowable.

Claims 2, 9, 23 and the new claims 30 and 31 all depend on claim 1 and accordingly are all allowable as depending on an allowable base claim.

Claim 27 is directed to a method of routing from a source node to a group of destination nodes having a common prefix. The method comprises determining a superior performance score from a plurality of performance scores and configuring a router to select an access link corresponding to the superior performance score. As explained above, neither Hefel nor Cohen, either alone or in combination, discloses configuring a router. Furthermore, Cohen, relied on as teaching generating a plurality of performance scores to a destination node, teaches no such thing. For at least these reasons, claim 27 is allowable over Hefel, Cohen, and their combination.

Claim 28 depends on claim 27 and accordingly is also allowable as depending on an allowable base claim.

Claims 3-8 and 26

Within the final Office Action, claims 3-8 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hefel in view of Cohen, and further in view of U.S. Patent Application Pub. No. 2003/0016770 A1 to Trans et al. and U.S. Patent Application Pub. No. 2002/0124100 A1 to Adams. The Applicants respectfully traverse these rejections.

As described above, claim 1 is allowable. Claims 3-8 and 26 all depend on claim 1. Accordingly, claims 3-8 and 26 are also all allowable as depending on an allowable base claim.

Claim 10

Within the final Office Action, claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hefel in view of Cohen, and further in view of U.S. Patent No. 5,754,639 to Flockhart et al. The Applicants respectfully traverse these rejections.

As described above, claim 1 is allowable. Claim 10 depends on claim 1. Accordingly, claim 10 is also allowable as depending on an allowable base claim.

Claims 24, 25, and 29

Within the final Office Action, claims 24, 25, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hefel in view of U.S. Patent No. 6,829,221 to Winckles et al. The Applicants respectfully traverse these rejections.

Claims 24, 25, and 29 all depend on claim 1. As explained above, claim 1 is allowable.

Accordingly, claims 24, 25, and 29 are also all allowable as depending on an allowable base claim.

The new claim 32 is allowable.

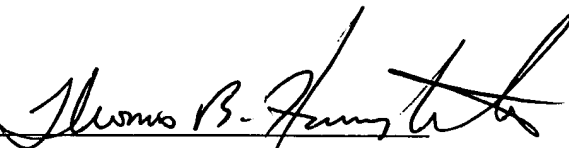
The new claim 32 is directed to a method of routing from a source node to a group of destination nodes having a common prefix. Claim 32 recites, in part, "generating a plurality of performance scores for a plurality of routes from the source node *to the destination nodes*, each performance score corresponding to an access link from one or more access links" (italics added). Claim 32 also recites "transmitting a routing change to one or more routers along the routes to route data along an access link corresponding to the superior performance score." Neither Hefel nor Cohen teaches either element. For at least these reasons, claim 32 is allowable over Hefel and Cohen, either alone or in combination.

CONCLUSION

No new matter has been added by the amendments made above. For the reasons given above, the Applicants respectfully submit that claims 1-10 and 23-32 are in condition for allowance, and allowance at an early date would be appreciated. If the Examiner has any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 so that any outstanding issues can be quickly and efficiently resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 11-16-05

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CERTIFICATE OF MAILING (37 CFR § 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

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